CHARACTERIZATION OF CONVECTIVE RAINFALL USING C-BAND DUAL-POLARIZED RADAR AND MODELS INTERCOMPARISON: COSMO-LAMI AND MM5.

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I. INTRODUCTION

In the last few years, the polarimetric upgrading of weather radars has allowed to improve considerably the accuracy related to the estimation of rain rate and to the hydrometeors classification, mainly in deep convective events. Recently, the need to deepen the analyses on such issues has been tackled by means of the development of modelling chains composed by high resolution numerical weather prediction models able to generate atmospheric scenarios with desired characteristics and radar simulation modules feed with the 3-D output fields of the aforementioned atmospheric models.

II. PRESENTATION OF RESEARCH

This work focuses primarily on the evaluation of the effects of different microphysical parameterizations embedded into two atmospheric limited area model (COSMO-MODEL and MM5) on the simulated co-polar and differential reflectivity datasets computed by radar simulation software (RSM). Since the latter is able to provide C-band polarimetric signatures of different hydrometeors, a second important task is constituted by the intercomparison of both simulated and the available observed reflectivity fields so as to assess the reliability of both models in reproducing deep convective weather conditions with a particular attention on the dynamics of the precipitation processes.

III. RESULTS AND CONCLUSIONS

Particularly, a severe event occurred over Northern Italy on 20/05/2003 has been simulated through the above mentioned numerical. The radar simulator allows for better comparing the models products with the radar. The models clearly reproduce the convective cell observed by the two radars, and they are both able to identify the event has a hail storm. Further work will be devoted in analyzing the sensitivity of both models to different microphysical parameterizations while simulated radar data will be compared with real data provided by ARPA-SIM's polarimetric radars of Gattatico and S.Pietro Capofiume.

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V. REFERENCES

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